



1636

Box-seq

(Rel.88—11/01 Pub.605)

FORM 9-37

9-221

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OCT 16 2002

TECH CENTER 1600/2900

Practitioner's Docket No. NEB-181

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Vaisvila

Application No.: 09 / 689,343 Group No.: 1636

Filed: October 12, 2000 Examiner: D. Guzo

For: Method For Cloning And Producing The MseI Restriction Endonuclease

#16D
Beta
TO-16-02

Box Sequence
Assistant Commissioner for Patents
Washington, D.C. 20231

SUBMISSION OF "SEQUENCE LISTING," COMPUTER READABLE COPY,
AND/OR AMENDMENT PERTAINING THERETO
FOR BIOTECHNOLOGY INVENTION CONTAINING NUCLEOTIDE
AND/OR AMINO ACID SEQUENCE

(check and complete this item, if applicable)

1. This replies to the Office Letter dated September 24, 2002.

NOTE: If these papers are filed before the office letter issues, adequate identification of the original papers should be made, e.g., in addition to the name of the inventor and title of invention, the filing date based on the "Express Mail" procedure, the application number from the return post card or the attorney's docket number added.

- A copy of the Office Letter is enclosed.

CERTIFICATION UNDER 37 C.F.R. §§ 1.8(a) and 1.10*

(When using Express Mail, the Express Mail label number is mandatory;
Express Mail certification is optional.)

I hereby certify that, on the date shown below, this correspondence is being:

MAILING

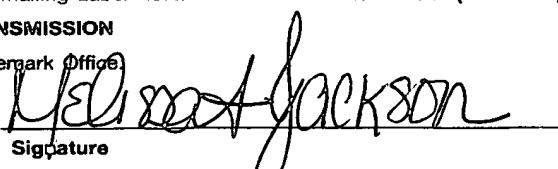
- deposited with the United States Postal Service in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231
37 C.F.R. § 1.8(a)

- with sufficient postage as first class mail. as "Express Mail Post Office to Addressee"
Mailing Label No. _____ (mandatory)

TRANSMISSION

- transmitted by facsimile to the Patent and Trademark Office

Date: 10/3/02


Signature

Melissa A. Jackson

(type or print name of person certifying)

*WARNING: Each paper or fee filed by Express Mail must have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. § 1.10(b).

"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will not be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

10/11/2002 HBERHE 00000007 09689343

(Submission—Nucleotide and/or Amino Acid Sequence [9-37]—page 1 of 6)

01 FC:216

200.00 OP

BEST AVAILABLE COPY

IDENTIFICATION OF PERSON MAKING STATEMENT

2. I, Harriet M. Strimpel

(type or print name of declarant signing below)

state the following:

ITEMS BEING SUBMITTED

3. Submitted herewith is/are:

(check each item as applicable)

- A. "Sequence Listing(s)" for the nucleotide and/or amino acid sequence(s) in this application. Each "Sequence Listing" is assigned a separate Identifier as required in 37 C.F.R. § 1.821(c) and 37 C.F.R. §§ 1.822 and 1.823.
- B. An amendment to the description and/or claims, wherein reference is made to the sequence by use of the assigned identifier, as required in 37 C.F.R. § 1.821(d).
- C. A copy of each "Sequence Listing" submitted for this application in computer readable form, in accordance with the requirements of 37 C.F.R. §§ 1.821(e) and 1.824.
- D. Please transfer to this application, in accordance with 37 C.F.R. § 1.821(e), the computer readable copy(ies) from applicant's other application identified as follows:

In re application of:

Application No.: 0 /

Group No.:

Filed:

Examiner:

For:

The Computer readable form(s) of applicant's other application corresponds to the "Sequence Identifier(s)" of the application as follows:

Computer Readable Form
(other application)

"Sequence Identifier"
(this application)

(Submission—Nucleotide and/or Amino Acid Sequence [9-37]—page 2 of 6)

NOTE: "If the computer readable form of a new application is to be identical with the computer readable form of another application of the applicant on file in the Office, reference may be made to the other application and computer readable form in lieu of filing a duplicate computer readable form in the new application. The new application shall be accompanied by a letter making such reference to the other application and computer readable form, both of which shall be completely identified." 37 C.F.R. § 1.821(e).

- E. A statement that the content of each "Sequence Listing" submitted and each computer readable copy are the same, as required in 37 C.F.R. § 1.821(g).
 Because the statement is not made by a person registered to practice before the Office, the statement is verified as required in 37 C.F.R. § 1.821(b).
- F. Because this submission is made in fulfilling the requirement under 37 C.F.R. § 1.821(g), a statement that the submission includes no new matter.
 Because the statement is not made by a person registered to practice before the Office, the statement is verified, as required in 37 C.F.R. § 1.821(g).

**STATEMENT THAT "SEQUENCE LISTING"
AND COMPUTER READABLE COPY ARE THE SAME
AND/OR THAT PAPERS SUBMITTED INCLUDES NO NEW MATTER**

4. I hereby state:

(complete applicable item A and/or B)

- A. Each computer readable form submitted in this application, including those forms requested to be transferred from applicant's other application, is the same as the "Sequence Listing" to which it is indicated to relate.
- B. All papers accompanying this submission, or for which a request for transfer from applicants' other application, introduce no new matter.

STATUS

5. Applicant is

- a small entity. A statement:
 is attached.
 was already filed.
 other than a small entity.

(Submission—Nucleotide and/or Amino Acid Sequence [9-37]—page 3 of 6)

BEST AVAILABLE COPY

EXTENSION OF TERM

6.

NOTE: 37 C.F.R. § 1.704(b) ". . .an applicant shall be deemed to have failed to engage in reasonable efforts to conclude processing or examination of an application for the cumulative total of any periods of time in excess of three months that are taken to reply to any notice or action by the Office making any rejection, objection, argument, or other request, measuring such three-month period from the date the notice or action was mailed or given to the applicant, in which case the period of adjustment set forth in § 1.703 shall be reduced by the number of days, if any, beginning on the day after the date that is three months after the date of mailing or transmission of the Office communication notifying the applicant of the rejection, objection, argument, or other request and ending on the date the reply was filed. The period, or shortened statutory period, for reply that is set in the Office action or notice has no effect on the three-month period set forth in this paragraph."

NOTE: "Extension of Time in Patent Cases (Supplement Amendments)—If a timely and complete response has been filed after a Non-Final Office Action, an extension of time is not required to permit filing and/or entry of an additional amendment after expiration of the shortened statutory period.

If a timely response has been filed after a Final Office Action, an extension of time is required to permit filing and/or entry of a Notice of Appeal or filing and/or entry of an additional amendment after expiration of the shortened statutory period unless the timely-filed response placed the application in condition for allowance. Of course, if a Notice of Appeal has been filed within the shortened statutory period, the period has ceased to run." Notice of Dec. 10, 1985 (1061 O.G. 34-35).

NOTE: See 37 C.F.R. § 1.645 for extensions of time in interference proceedings and 37 C.F.R. § 1.550(c) for extensions of time in reexamination proceedings.

7. The proceedings herein are for a patent application and the provisions of 37 C.F.R. § 1.136 apply.

(complete (a) or (b) as applicable)

- (a) Applicant petitions for an extension of time under 37 C.F.R. § 1.136
(fees: 37 C.F.R. § 1.17(a)(1)-(4)) for the total number of months checked below:

<u>Extension (months)</u>	<u>Fee for other than small entity</u>	<u>Fee for small entity</u>
<input type="checkbox"/> one month	\$ 110.00	\$ 55.00
<input type="checkbox"/> two months	\$ 400.00	\$ 200.00
<input checked="" type="checkbox"/> three months	\$ 920.00	\$ 460.00
<input type="checkbox"/> four months	\$ 1,440.00	\$ 720.00

Fee: \$ 200.00

If an additional extension of time is required, please consider this a petition therefor.

(check and complete the next item, if applicable)

- An extension for _____ months has already been secured. The fee paid therefor of \$_____ is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request \$ 200.00

OR

- (b) Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.

(Submission—Nucleotide and/or Amino Acid Sequence [9-37]—page 4 of 6)

FEE PAYMENT

8. Attached is a check money order in the amount of \$ 200.00
 Authorization is hereby made to charge the amount of \$ _____
 to Deposit Account No. _____
 to Credit card as shown on the attached credit card information authorization form PTO-2038.

WARNING: Credit card information should not be included on this form as it may become public.

- Charge any additional fees required by this paper or credit any overpayment in the manner authorized above.

A duplicate of this paper is attached.

FEE DEFICIENCY

9.

NOTE: If there is a fee deficiency and there is no authorization to charge an account, additional fees are necessary to cover the additional time consumed in making up the original deficiency. If the maximum, six-month period has expired before the deficiency is noted and corrected, the application is held abandoned. In those instances where authorization to charge is included, processing delays are encountered in returning the papers to the PTO Finance Branch in order to apply these charges prior to action on the cases. Authorization to charge the deposit account for any fee deficiency should be checked. See the Notice of April 7, 1986, 1065 O.G. 31-33.

10. If any additional extension and/or fee is required, charge
 Deposit Account No. 14-0740
 Credit card as shown on the attached credit card information authorization form PTO-2038.

WARNING: Credit card information should not be included on this form as it may become public.

SIGNATURE(s)

Harriet M. Strimpel

(type or print name of person signing statement)

Sept 30, 2002

Date

Signature

Harriet Strimpel

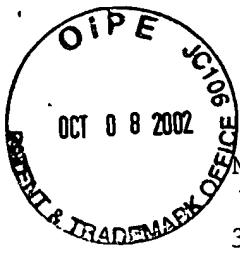
P.O. Address of Signatory

(if applicable)

Telephone No. (978) 927-5054 X:373
 Reg. No. 37008
 Customer No.: 28986

- Inventor(s)
 Assignee of complete interest
 Person authorized to sign on behalf of assignee
 Practitioner of record
 Filed under Rule 34(a)
 Registration No. 37008
 Other _____

(specify identity of declarant)



(complete the following, if applicable)

New England Biolabs, Inc.

(type name of assignee)

32 Tozer Road

Address of assignee

Beverly, MA 01915

Secretary

Title of person authorized to sign on behalf of
assignee

A "STATEMENT UNDER 37 C.F.R. § 3.73(b)" is attached.

Assignment recorded in PTO on mailed with Application on 10/12/2000

Reel _____ Frame _____

Reg. No.: 37008

SIGNATURE OF PRACTITIONER

Harriet M. Strimpel, D.Phil.

Tel. No.: (978) 927-5054 X:373

(type or print name of practitioner)

Patent Counsel

New England Biolabs, Inc.

P.O. Address

Customer No.: 28986

32 Tozer Road

Beverly, MA 01915

(Submission—Nucleotide and/or Amino Acid Sequence [9-37]—page 6 of 6)



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/689,343	10/12/2000	Romualdas Vaisvila	NEB-181	7976

28986 7590 09/24/2002

NEW ENGLAND BIOLABS, INC.
32 TOZER ROAD
BEVERLY, MA 01915

[REDACTED] EXAMINER

GUZO, DAVID

ART UNIT	PAPER NUMBER
1636	15

DATE MAILED: 09/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: ASSISTANT COMMISSIONER FOR PATENTS
Washington, D.C. 20231

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
---------------------------------	-------------	---	---------------------

EXAMINER

ART UNIT PAPER

15

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

SEE ATTACHMENT -

Attachment

The communication filed 7/2/02 is not fully responsive to the Office communication mailed 6/19/02 for the reason(s) set forth below or on the attached Notice To Comply With The Sequence Rules or CRF Diskette Problem Report.

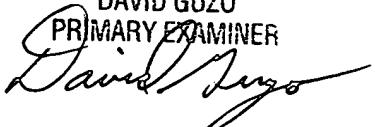
If a complete reply has not been submitted by the time the shortened statutory period set in the communication mailed 6/19/02 has expired, this application will become abandoned unless applicant corrects the deficiency and obtains an extension of time under 37 CFR 1.136(a). In no case may an applicant extend the period for reply beyond the SIX MONTH statutory period.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Guzo whose telephone number is (703) 308-1906. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 5:30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Irem Yucel, can be reached on (703) 305-1998. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4242. Faxes may be sent directly to the examiner at (703) 746-5061.

Any inquiry of a general nature or relating to the status of this application or proceeding or relating to attachments to this Office Action should be directed to Patent Analyst Zeta Adams whose telephone number is (703) 305-3291.

David Guzo
September 23, 2002

DAVID GUZO
PRIMARY EXAMINER




Applicant's Copy

Application No.

09/689343

NOTICE TO OFFICE OF PATENT AND TRADEMARKS
TO COMPLY WITH REQUIREMENTS FOR PATENT APPLICATIONS CONTAINING
NUCLEOTIDE SEQUENCE AND/OR AMINO ACID SEQUENCE DISCLOSURES

The nucleotide and/or amino acid sequence disclosure contained in this application does not comply with the requirements for such a disclosure as set forth in 37 CFR 1.821 - 1.825 for the following reason(s):

1. This application clearly fails to comply with the requirements of 37 CFR 1.821 - 1.825. Applicant's attention is directed to these regulations, published at 1114 OG 29, May 15, 1990 and at 55 FR 18230, May 1, 1990.
2. This application does not contain, as a separate part of the disclosure on paper copy, a "Sequence Listing" as required by 37 CFR 1.821(c).
3. A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 CFR 1.821(e).
4. A copy of the "Sequence Listing" in computer readable form has been submitted. However, the content of the computer readable form does not comply with the requirements of 37 CFR 1.822 and/or 1.823, as indicated on the attached copy of the marked-up "Raw Sequence Listing."
5. The computer readable form that has been filed with this application has been found to be damaged and/or unreadable as indicated on the attached CRF Diskette Problem Report. A substitute computer readable form must be submitted as required by 37 CFR 1.825(d).
6. The paper copy of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 CFR 1.821(e).

- 7.

Other:

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OCT 16 2002

Applicant must provide:

TECH CENTER 1600/2900

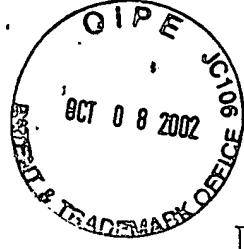
- An initial or substitute computer readable form (CRF) copy of the "Sequence Listing"
- An initial or substitute paper copy of the "Sequence Listing", as well as an amendment directing its entry into the specification
- A statement that the content of the paper and computer readable copies are the same and, where applicable, include no new matter, as required by 37 CFR 1.821(e) or 1.821(f) or 1.821(g) or 1.825(b) or 1.825(d)

For questions regarding compliance with these requirements, please contact:

For Rules Interpretation, call (703) 308-1123

For CRF submission help, call (703) 308-4212

For PatentIn software help, call (703) 557-0400



Applicant's Copy

BIOTECHNOLOGY
SYSTEMS
BRANCH



1600

1636

#14

RAW SEQUENCE LISTING ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/689,343C
Source: 1600
Date Processed by STIC: 7/19/02

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AUG 14 2002

TECH CENTER 1600/2900

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
 - 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY
- FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.

PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax)

PATENTIN 3.0 e-mail help: patin3help@uspto.gov or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER VERSION 3.1 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW FOR ADDRESS:

<http://www.uspto.gov/web/offices/pac/checker>

Applicants submitting genetic sequence information electronically on diskette or CD-Rom should be aware that there is a possibility that the disk/CD-Rom may have been affected by treatment given to all incoming mail.

Please consider using alternate methods of submission for the disk/CD-Rom or replacement disk/CD-Rom.

Any reply including a sequence listing in electronic form should NOT be sent to the 20231 zip code address for the United States Patent and Trademark Office, and instead should be sent via the following to the indicated addresses:

1. EFS-Bio (<http://www.uspto.gov/ebc/efs/downloads/documents.htm>), EFS Submission User Manual - ePAVE)
2. U.S. Postal Service: U.S. Patent and Trademark Office, Box Sequence, P.O. Box 2327, Arlington, VA 22202
3. Hand Carry directly to:
U.S. Patent and Trademark Office, Technology Center 1600, Reception Area, 7th Floor, Examiner Name, Sequence Information, Crystal Mall One, 1911 South Clark Street, Arlington, VA 22202
Or
U.S. Patent and Trademark Office, Box Sequence, Customer Window, Lobby, Room 1B03, Crystal Plaza Two, 2011 South Clark Place, Arlington, VA 22202
4. Federal Express, United Parcel Service, or other delivery service to: U.S. Patent and Trademark Office, Box Sequence, Room 1B03-Mailroom, Crystal Plaza Two, 2011 South Clark Place, Arlington, VA 22202

Revised 01/29/2002

RECEIVED
TECH CENTER 1600/2900

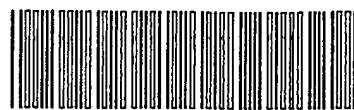
OCT 16 2002

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AUG 14 2002

TECH CENTER 1600/2900



1600
Does Not Comply
Corrected Diskette Needed

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/689,343C

DATE: 07/19/2002 Error on p. 5
TIME: 14:59:20

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Output Set: N:\CRF3\07192002\I689343C.raw

RECEIVED

OCT 16 2002

TECH CENTER 1600/2900

3 <110> APPLICANT: Vaisvila, Romualdus
4 Morgan, Richard D.
5 Kucera, Rebecca B.
6 Claus, Toby B.
7 Raleigh, Elisabeth A.
9 <120> TITLE OF INVENTION: Method For Cloning And Producing The MseI Restriction Endonuclease

11 <130> FILE REFERENCE: NEB-181		
13 <140> CURRENT APPLICATION NUMBER: US 09/689,343C		
14 <141> CURRENT FILING DATE: 2000-10-12		
16 <160> NUMBER OF SEQ ID NOS: 9		
18 <170> SOFTWARE: PatentIn version 3.1		
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22 <212> TYPE: DNA		
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34 1 5 10 15		
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37 Glu Ala Asp Asn Leu Asp Phe Ile Gln Thr Leu Pro Asp Ala Ser Phe		
38 20 25 30		
40 cga atg atc tac atc gat ccg ccg ttc aac aca ggg cga acg cag cgg		144
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42 35 40 45		
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45 Leu Gln Ser Leu Lys Thr Thr Arg Ser Val Thr Gly Ser Arg Val Gly		
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53 Asp Asp Ala Phe Thr Asp Tyr Trp Ser Phe Leu Glu Pro Arg Leu Leu		
54 85 90 95		
56 gag gct tgg cgg ttg ctc acc cct gac ggc gcg ctc tat ctt cat ctg		336
57 Glu Ala Trp Arg Leu Leu Thr Pro Asp Gly Ala Leu Tyr Leu His Leu		
58 100 105 110		
60 gat tac cgc gag gtt cac tac gcc aag gtc gtc ctc gac gcg atg ttc		384
61 Asp Tyr Arg Glu Val His Tyr Ala Lys Val Val Leu Asp Ala Met Phe		

RAW SEQUENCE LISTING
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70	145	150	155	160
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81	Leu Gly Lys Leu Pro Thr Asp Val Trp Trp His Thr Ile Val Pro Pro			
82	195	200	205	
84	gcg agc aaa gag cgc acc ggg tac gcg aca cag aag ccg gtc ggc atc			672
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86	210	215	220	
88	atc cgt cgc atg att cag gcg agc agc aat gaa ggc gac tgg gtt ctg			720
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90	225	230	235	240
92	gat ttc ttc gct ggt agt ggg acg acc ggc gcc gcg gcc cgc cag ctc			768
93	Asp Phe Ala Gly Ser Gly Thr Thr Gly Ala Ala Ala Arg Gln Leu			
94	245	250	255	
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101	Met Ala Lys Arg Leu Asp Asp Gly Ala Leu Asp Thr Ser Val Thr Ile			
102	275	280	285	
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120	20	25	30	
122	Arg Met Ile Tyr Ile Asp Pro Pro Phe Asn Thr Gly Arg Thr Gln Arg			
123	35	40	45	
125	Leu Gln Ser Leu Lys Thr Thr Arg Ser Val Thr Gly Ser Arg Val Gly			
126	50	55	60	
128	Phe Lys Gly Gln Thr Tyr Asp Thr Val Lys Ser Thr Leu His Ser Tyr			
129	65	70	75	80

RAW SEQUENCE LISTING DATE: 07/19/2002
 PATENT APPLICATION: US/09/689,343C TIME: 14:59:20

Input Set : A:\NEB-181.ST25.txt
 Output Set: N:\CRF3\07192002\I689343C.raw

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135           100         105         110
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138           115         120         125
140 Gly Arg Glu Ser Phe Leu Asn Glu Leu Ile Trp Ala Tyr Asp Tyr Gly
141           130         135         140
143 Ala Arg Ser Lys Ser Lys Trp Pro Thr Lys His Asp Asn Ile Leu Val
144 145           150         155         160
146 Tyr Val Lys Asp Pro Asn Asn Tyr Val Trp Asn Gly Gln Asp Val Asp
147           165         170         175
149 Arg Glu Pro Tyr Met Ala Pro Gly Leu Val Thr Pro Glu Lys Val Ala
150           180         185         190
152 Leu Gly Lys Leu Pro Thr Asp Val Trp Trp His Thr Ile Val Pro Pro
153           195         200         205
155 Ala Ser Lys Glu Arg Thr Gly Tyr Ala Thr Gln Lys Pro Val Gly Ile
156           210         215         220
158 Ile Arg Arg Met Ile Gln Ala Ser Ser Asn Glu Gly Asp Trp Val Leu
159 225           230         235         240
161 Asp Phe Phe Ala Gly Ser Gly Thr Thr Gly Ala Ala Ala Arg Gln Leu
162           245         250         255
164 Gly Arg Arg Phe Val Leu Val Asp Val Asn Pro Glu Ala Ile Ala Val
165           260         265         270
167 Met Ala Lys Arg Leu Asp Asp Gly Ala Leu Asp Thr Ser Val Thr Ile
168           275         280         285
170 Val Gln Thr Pro Gln Ser Asp Pro Arg Thr Asp Gly
171           290         295         300
173 <210> SEQ ID NO: 3
174 <211> LENGTH: 1236
175 <212> TYPE: DNA
176 <213> ORGANISM: Unknown
178 <220> FEATURE:
179 <223> OTHER INFORMATION: Environmental DNA
181 <220> FEATURE:
182 <221> NAME/KEY: CDS
183 <222> LOCATION: (1)..(1233)
184 <223> OTHER INFORMATION:
186 <220> FEATURE:
187 <221> NAME/KEY: misc_feature
188 <222> LOCATION: (198)..(198)
189 <223> OTHER INFORMATION: Xaa = any amino acid
191 <220> FEATURE:
192 <221> NAME/KEY: misc_feature
193 <222> LOCATION: (594)..(594)
194 <223> OTHER INFORMATION: N= G, A, C or T
196 <400> SEQUENCE: 3
198 atg cct aca ctg gat tgg ccc ggt aaa cag tta agc ttc cca cca gct
199 Met Pro Thr Leu Asp Trp Pro Gly Lys Gln Leu Ser Phe Pro Pro Ala

```

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RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/689, 343C

DATE: 07/19/2002
TIME: 14:59:20

Input Set : A:\NEB-181.ST25.txt
Output Set: N:\CRF3\07192002\I689343C.raw

200	1	5	10	15	
202	acc tcc ttg cat ctg gag agt gtg gtc act gag gga gcg gag tca ccg				96
203	Thr Ser Leu His Leu Glu Ser Val Val Thr Glu Gly Ala Glu Ser Pro				
204	20	25	30		
206	cct aat cgt ctg att tgg gcg gac aac ctg ccg cta atg gta gat ttg				144
207	Pro Asn Arg Leu Ile Trp Ala Asp Asn Leu Pro Leu Met Val Asp Leu				
208	35	40	45		
210	ttg gcc gaa tat gaa ggg aaa atc gat ctg atc tac gcc gat ccc cct				192
211	Leu Ala Glu Tyr Glu Gly Lys Ile Asp Leu Ile Tyr Ala Asp Pro Pro				
212	50	55	60		
214	ttt ttt acg gat cgt act tat gcg gcg cga atg ggt cat ggg gag gat				240
215	Phe Phe Thr Asp Arg Thr Tyr Ala Ala Arg Ile Gly His Gly Glu Asp				
216	65	70	75	80	
218	tgc cgt cgt cca caa acc tgg cag ctt gca gaa gga tat acg gac gag				288
219	Ser Arg Arg Pro Gln Thr Trp Gln Leu Ala Glu Gly Tyr Thr Asp Glu				
220	85	90	95		
222	tgg aag gat tta gat gaa tac ctg gac ttc ctt tat cca cgc ctg gta				336
223	Trp Lys Asp Leu Asp Glu Tyr Leu Asp Phe Leu Tyr Pro Arg Leu Val				
224	100	105	110		
226	ctg atg tat cga ctg ctg gca cca cac gga acg ctc tac ttg cac ctg				384
227	Leu Met Tyr Arg Leu Leu Ala Pro His Gly Thr Leu Tyr Leu His Leu				
228	115	120	125		
230	gac tgg cac gcc aat gcc tac gta cgt gta ctg ctt gat gag atc ttc				432
231	Asp Trp His Ala Asn Ala Tyr Val Arg Val Leu Leu Asp Glu Ile Phe				
232	130	135	140		
234	ggg cga cag cgg ttt ctc aac gag atc gtc tgg atc tat cac ggc ccc				480
235	Gly Arg Gln Arg Phe Leu Asn Glu Ile Val Trp Ile Tyr His Gly Pro				
236	145	150	155	160	
238	tca gcc atc cga cgc gcc ttc aag cgc aaa cat gat acc atc ttg gtt				528
239	Ser Ala Ile Arg Arg Ala Phe Lys Arg Lys His Asp Thr Ile Leu Val				
240	165	170	175		
242	tat gtg aaa ggt gaa aac tat aca ttc aat gcg gat ggc gtt cgt caa				576
243	Tyr Val Lys Gly Glu Asn Tyr Thr Phe Asn Ala Asp Ala Val Arg Gln				
244	180	185	190		
W-->	246 cct tac cat ccg agc acn cat aag acc ttc gct tcc tcc ccg aag gcc				624
W-->	247 Pro Tyr His Pro Ser Xaa His Lys Thr Phe Ala Ser Ser Pro Lys Ala				
248	195	200	205		
250	ggc ttt ggt aag gtg ccg gat ctg cag cgc ggc aaa gtg ccc gaa gac				672
251	Gly Phe Gly Lys Val Pro Asp Leu Gln Arg Gly Lys Val Pro Glu Asp				
252	210	215	220		
254	tgg tgg tat ttt ccg gtc gtg gcc cgt cta cac cga gaa cgg agc ggc				720
255	Trp Trp Tyr Phe Pro Val Val Ala Arg Leu His Arg Glu Arg Ser Gly				
256	225	230	235	240	
258	tat ccg act caa aag cct caa gcc ttg ctg gag cgg atc ctg ctg gcc				768
259	Tyr Pro Thr Gln Lys Pro Gln Ala Leu Leu Glu Arg Ile Leu Ala				
260	245	250	255		
262	tcc tcg aac gca ggc gat ctg gtg gca gac ttc ttc tgc ggc tca ggg				816
263	Ser Ser Asn Ala Gly Asp Leu Val Ala Asp Phe Phe Cys Gly Ser Gly				
264	260	265	270		

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/689,343C

DATE: 07/19/2002
TIME: 14:59:21

Input Set : A:\NEB-181.ST25.txt
Output Set: N:\CRF3\07192002\I689343C.raw

266	aca acc gct gtg gtg gca gcc cgt ctg gga cgg cgc ttc ctg gtc aac	864
267	Thr Thr Ala Val Val Ala Ala Arg Leu Gly Arg Arg Phe Leu Val Asn	
268	275 280 285	
270	gat gca agc tgg cgc gcc gtt cat gtg aca cgc aca cgc ttg cta cgc	912
271	Asp Ala Ser Trp Arg Ala Val His Val Thr Arg Thr Arg Leu Leu Arg	
272	290 295 300	
274	gag gga gta agt ttc act ttt gaa cgc cag gaa act ttt act cta cct	960
275	Glu Gly Val Ser Phe Thr Phe Glu Arg Gln Glu Thr Phe Thr Leu Pro	
276	305 310 315 320	
278	atc cag cca ctt cca cca gat tgg ttg atc atc qcc qag gag caq att	1008
279	Ile Gln Pro Leu Pro Pro Asp Trp Leu Ile Ile Aia Glu Glu Gln Ile	
280	325 330 335	
282	cgc ctc caa gca ccc ttt ctc gta gat ttt tgg gaa gtg gac gat caa	1056
283	Arg Leu Gln Ala Pro Phe Leu Val Asp Phe Trp Glu Val Asp Asp Gln	
284	340 345 350	
286	tgg gat ggc aaa atc ttc cgc agc cgt cat caa ggc tta cgc tcc cgc	1104
287	Trp Asp Gly Lys Ile Phe Arg Ser Arg His Gln Gly Leu Arg Ser Arg	
288	355 360 365	
290	ctt cag gag cag gcg ccg ctc tct cta cca ttg acc ggg aat gga ctg	1152
291	Leu Gln Glu Gln Ala Pro Leu Ser Leu Pro Leu Thr Gly Asn Gly Leu	
292	370 375 380	
294	ttg tgt gta cgg gta gtg agc cgt gaa ggg gaa tac tat gag ttc aca	1200
295	Leu Cys Val Arg Val Val Ser Arg Glu Gly Glu Tyr Tyr Glu Phe Thr	
296	385 390 395 400	
298	ggt cga gcc gat agc cct cac ccc gta tcg ttt tga	1236
299	Gly Arg Ala Asp Ser Pro His Pro Val Ser Phe	
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303	<210> SEQ ID NO: 4	
304	<211> LENGTH: 411	
305	<212> TYPE: PRT	
306	<213> ORGANISM: Unknown	
308	<220> FEATURE:	
309	<223> OTHER INFORMATION: Environmental DNA	
311	<220> FEATURE:	
312	<221> NAME/KEY: misc_feature	
313	<222> LOCATION: (198)..(198)	
314	<223> OTHER INFORMATION: Xaa = any amino acid	
316	<220> FEATURE:	
317	<221> NAME/KEY: misc_feature	
318	<222> LOCATION: (594)..(594)	
319	<223> OTHER INFORMATION: N= G, A, C or T	
321	<400> SEQUENCE: 4	
323	Met Pro Thr Leu Asp Trp Pro Gly Lys Gln Leu Ser Phe Pro Pro Ala	
324	1 5 10 15	
326	Thr Ser Leu His Leu Glu Ser Val Val Thr Glu Gly Ala Glu Ser Pro	
327	20 25 30	
329	Pro Asn Arg Leu Ile Trp Ala Asp Asn Leu Pro Leu Met Val Asp Leu	
330	35 40 45	
332	Leu Ala Glu Tyr Glu Gly Lys Ile Asp Leu Ile Tyr Ala Asp Pro Pro	

This is a protein sequence - amino acid
P is not found at position 594

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 07/19/2002
PATENT APPLICATION: US/09/689, 343C TIME: 14:59:22

Input Set : A:\NEB-181.ST25.txt
Output Set: N:\CRF3\07192002\I689343C.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:3; N Pos. 594
Seq#:3; Xaa Pos. 198
Seq#:4; Xaa Pos. 198

VERIFICATION SUMMARY
PATENT APPLICATION: US/09/689, 343C

DATE: 07/19/2002
TIME: 14:59:22

Input Set : A:\NEB-181.ST25.txt
Output Set: N:\CRF3\07192002\I689343C.raw

L:246 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:576
L:247 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:624
L:359 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:192